Kansas Agricultural Experiment Station Research Reports

Volume 0
Issue 1 *Cattleman's Day (1993-2014)*

Article 1338

1975

Synchronizing estrus in beef heifers

G. Heersche

G.H. Kiracofe

R.M. McKee

See next page for additional authors

Synchronizing estrus in beef heifers

Abstract

Estrous synchronization would benefit the cattle industry. Successful methods are not commercially available, so new compounds and treatment procedures are being tested. Treatment with melengestrol acetate, prostaglandin, or luteining releasing factor resulted in unsuccessful synchronization and lowered fertility. Successful synchronization and 63.2% first service conception followed syncro-mate B, PGF2, and LRF.

Keywords

Cattlemen's Day, 1975; Report of progress (Kansas State University. Agricultural Experiment Station); 230; Beef; Synchronization; Melengestrol acetate; Prostaglandin; Fertility

Authors

G. Heersche, G.H. Kiracofe, R.M. McKee, and D.G. Morrison

Synchronizing Estrus in Beef Heifers

G. Heersche, Jr., G. H. Kiracofe,
R. M. McKee, and D. G. Morrison

Summary

Estrous synchronization would benefit the cattle industry. Successful methods are not commercially available, so new compounds and treatment procedures are being tested. Treatment with melengestrol acetate, prostaglandin, or luteining releasing factor resulted in unsuccessful synchronization and lowered fertility. Successful synchronization and 63.2% first service conception followed syncro-mate B, $PGF_{2}\alpha$, and LRF.

Introduction

Synchronizing estrus would benefit cattlemen who use artificial insemination. In addition to the benefits of artificial insemination estrus synchronization consolidates labor and lets a cattleman control his breeding and calving seasons. Successful synchronization methods are not commercially available.

Melengestrol acetate (MGA), a progesterone like compound, will inhibit estrus when fed to heifers. Syncro-mate B is a synthetic progesterone that inhibits estrus while implanted in the ear. The $F_{2}\alpha$ series of prostaglandin ($PGF_{2}\alpha$), when injected regresses the corpus luteum if the heifer or cow is at least five days post estrus. That terminates her cycle so she returns to estrus. Luteinizing releasing factor (LRF) will result in ovulation if injected at the right stage of the estrous cycle.

MGA, $PGF_{2}\alpha$, and LRF, (trial I) and syncro-mate B, $PGF_{2}\alpha$, and LRF (trial II) were the combinations we tested.

Experimental Procedure

Trial I. Twenty-one cycling heifers were fed MGA (.7 mg/heifer/day, The Up John Co.) for 18 days. After removal of MGA, heifers were checked twice daily for signs of estrus. Eighteen days after removal of MGA all heifers were injected intramuscularly with $PGF_{2}\alpha$ (30 mgs., The Up John Co.). Heifers were observed for standing estrus every two hours from 6:00 a.m. to 9:00 p.m., and were artificially inseminated 12 to 18 hours after detected in estrus. Heifers not exhibiting standing estrus by 60 hours after $PGF_{2}\alpha$ received an intramuscular injection of LRF (325 mg./heifer, Parke, Davis and Co.) at 60.5 to 62 hours after $PGF_{2}\alpha$.

Trial II. Syncro-mate B (6 mgs., G. D. Searle Co.) was implanted in one ear of 19 cycling heifers. Seven days later the implants were removed and each heifer was injected intramuscularly with $PGF_{2}\alpha$ (30 mgs./heifer,

the Up John Co.). Estrous observations and artificial insemination were conducted as in trial I. Those not exhibiting standing estrus by 60 hours after $PGF_{2\alpha}$ received an intramuscular injection of LRF (250 mg./heifer, Parke, Davis and Co.) at 60.5 hours after $PGF_{2\alpha}$. The treated heifers plus 13 non-synchronized heifers were confined to drylot. First service conception was determined by rectal pregnancy diagnosis 55 and 95 days later.

Results and Discussion

Trial I. Fifteen of the 21 heifers were in estrus between day 5 and day 10 after MGA removal. Mucus discharge or roughing of the hair on tail head and rump was observed in the other six heifers.

Eight heifers (38.1%) exhibited estrus between $PGF_{2\alpha}$ and 60 hours later. Two of these heifers had follicular cysts. Four of the eight heifers (50.0%) conceived. The cystic heifers did not conceive. Thirteen heifers did not exhibit estrus by 60 hours after $PGF_{2\alpha}$ and received LRF. Five of the 13 (38.5%) conceived when inseminated 13 to 14.5 hours after LRF. First service conception in all heifers was 42.8% (9 of 21).

Trial II. Results of this trial are in table 6.1. The first estrous was observed 31 hours after $PGF_{2\alpha}$, and by 60 hours 17 of the 19 (89.5%) had exhibited estrus. Two heifers received LRF. First service conception was 63.2% (12 of 19). First service conception in the non-synchronized heifers was 53.8% (7 of 13).

Conclusions

Successful synchronization followed by 63.2% first service conception resulted from syncro-mate B, $PGF_{2\alpha}$ and LRF in combination (trial II). Treatment with MGA, $PGF_{2\alpha}$ and LRF resulted in unsuccessful synchronization and lowered fertility.

Table 6.1. Estrus and Conception Rates of Heifers Treated With Syncro-mate B and Prostaglandin $F_{2\alpha}$.

	Day post prostaglandin			
	pm 1	am 2	pm 2	Total
Estrus	9	5	3	17[a]
Conceived	6	2	3	11[b,c]

[a]Two that did not show heat by 60 hours post $PFG_{2\alpha}$ were injected with LRF at 60 hours, bred at 72 hours post $PGF_{2\alpha}$; one conceived, one did not.

[b]64.7%.

[c]Conception of all 19 heifers (12/19)--63.2%.